Virginia Department of Health
Tularemia: Overview for Healthcare Providers

Organism/Stability	• *Francisella tularensis*: Gram-negative bacteria, small, non-motile, aerobic, coccobacillus; non-spore forming; comes in two subspecies (biovars): Jellison type A (tularensis)– highly virulent; Jellison type B (palaearctica)– less virulent • Survives for weeks at low temperatures in water, moist soil, hay, straw, and decaying animal carcasses
Infective Dose	Very low; approximately 10 organisms
Natural Reservoir	Small mammals (including voles, mice, squirrels, rabbits, hares)
Route of Infection	• Inhalation of or contact with infective aerosols • Bite of infected arthropods (wood, dog and lone star ticks; deer flies; and, in other countries, mosquitoes) • Ingestion of contaminated meat, water, soil or vegetation • Contact with contaminated water, soil, vegetation or infectious animal tissues or fluids
Communicability	• No person-to-person transmission • Laboratory workers who do not use proper protective equipment are at risk
Risk Factors	Hunting; trapping; butchering; farming; handling infective laboratory specimens
Case Fatality	• Untreated Type A: 5-15% and as high as 30-60% for pneumonic and systemic disease • Type B: few fatalities occur, even without treatment
Incubation Period	3 to 5 days (range 1 to 14 days)
Clinical Manifestations	**Glandular:** regional lymphadenopathy with no ulcer; occurs through contact with an infected animal carcass or through an arthropod bite
	Ulceroglandular: cutaneous ulcer with regional lymphadenopathy; occurs through contact with an infected animal carcass or through an arthropod bite
	Oculoglandular: conjunctivitis with preauricular lymphadenopathy; occurs with direct contamination of eye
	Oropharyngeal: stomatitis, pharyngitis, tonsillitis, cervical lymphadenopathy; occurs through ingestion of contaminated food or water or inhalation of contaminated droplets
	Intestinal: intestinal pain, vomiting and diarrhea; occurs rarely, through ingestion of contaminated food or water
	Typhoidal: febrile illness without early localizing signs and symptoms; used to describe illness in patients with systemic infections without cutaneous or mucosal membrane lesions
	Pneumonic: primary pleuropulmonary disease; occurs through inhalation of infectious aerosols or secondary to hematogenous spread
Laboratory Tests/ Sample Collection	Lymph node aspirate; bronchial or tracheal wash or induced sputum; eye swab; blood; biopsy of ulcer/wound. Alert lab of biohazard. For consult, page the state lab (DCLS), available 24/7, at 804-418-9923.
Radiography	Earliest findings may be peribronchial infiltrates advancing to bronchopneumonia.
Treatment (for adults)	• **Streptomycin (preferred)**, 1 gm IM twice daily X 10 days, or • **Gentamicin (preferred)**, 5 mg/kg IM or IV once daily X 10 days (Not an FDA approved use), or • Ciprofloxacin, 400 mg IV twice daily X 10 days (Not an FDA approved use), or • Chloramphenicol, 15mg/kg IV 4 times daily X 14-21 days (Not for pregnant women), or • Doxycycline, 100mg IV twice daily X 14-21 days
Prophylaxis (adults)	**Doxycycline (preferred),** 100 mg orally twice daily X 14 days, or Ciprofloxacin, 500 mg orally twice daily X 14 days (Not an FDA approved use)
Infection Control	Isolation not recommended for patients. Use contact precautions for open lesions.
Vaccine	Lab workers routinely working with the organism should be vaccinated. A vaccine is under review by the FDA for use in the general population; future availability is undetermined.
Public Health	Suspected cases of tularemia must be reported to the local health department by the most rapid means available.

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For more information, refer to: Dennis DT; Inglesby TV; Henderson DA, et al. Tularemia as a Biological Weapon: Medical and Public Health Management. *JAMA*. 2001;285(21):2763-2773. Available online at: http://jama.ama-assn.org/

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